Feb. 27, 1973 W. PRIEBELL ET AL 3,718,245

SHEET INSERTING APPARATUS FOR A TYPEWRITER

Filed Dec. 21, 1970 5 Sheets-Sheet 1

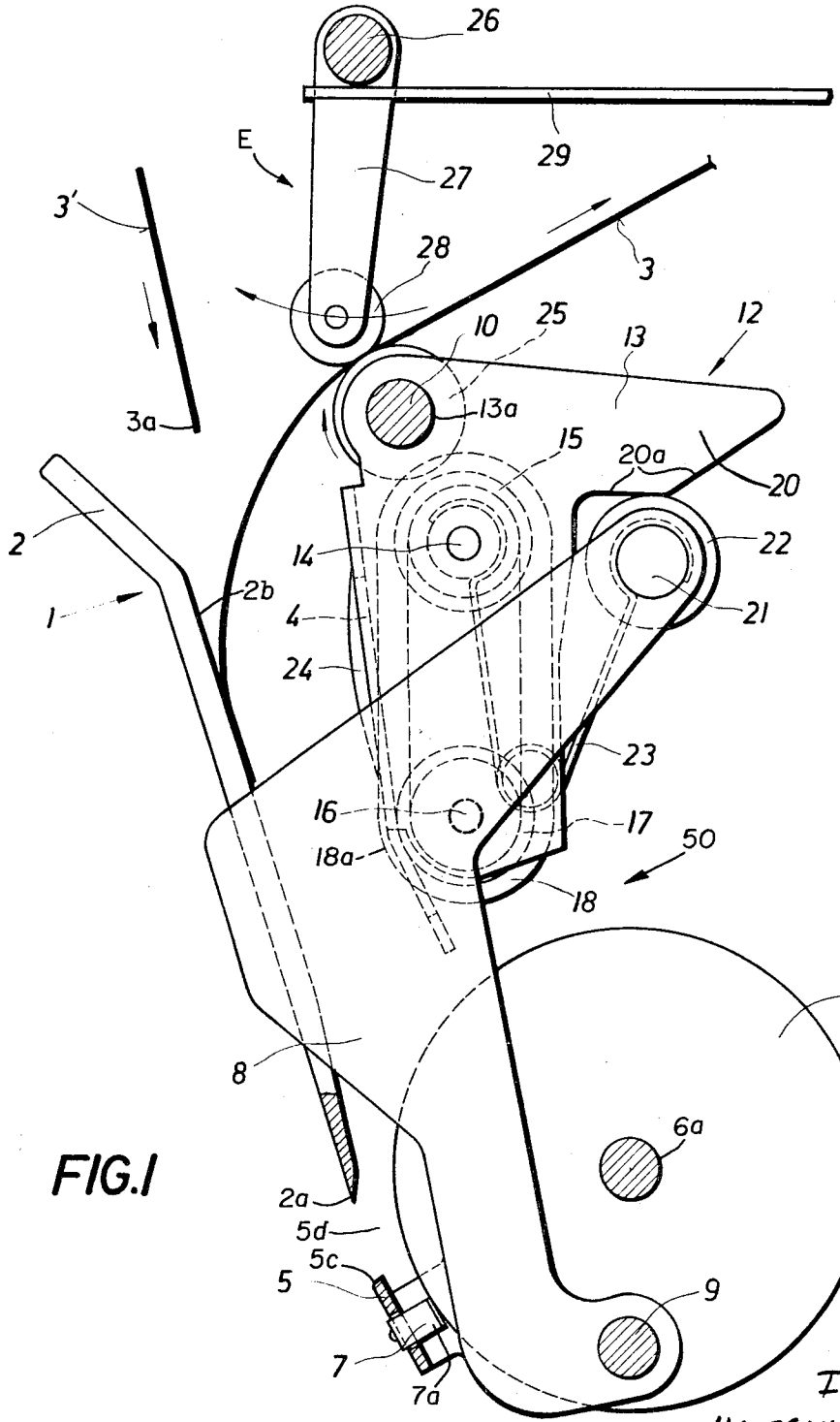


FIG.1

INVENTORS:
WOLFGANG PRIEBEL
ARTUR FROBEL

BY: Michael J. Striker
ATTORNEY

SHEET INSERTING APPARATUS FOR A TYPEWRITER

Filed Dec. 21, 1970 5 Sheets-Sheet 2

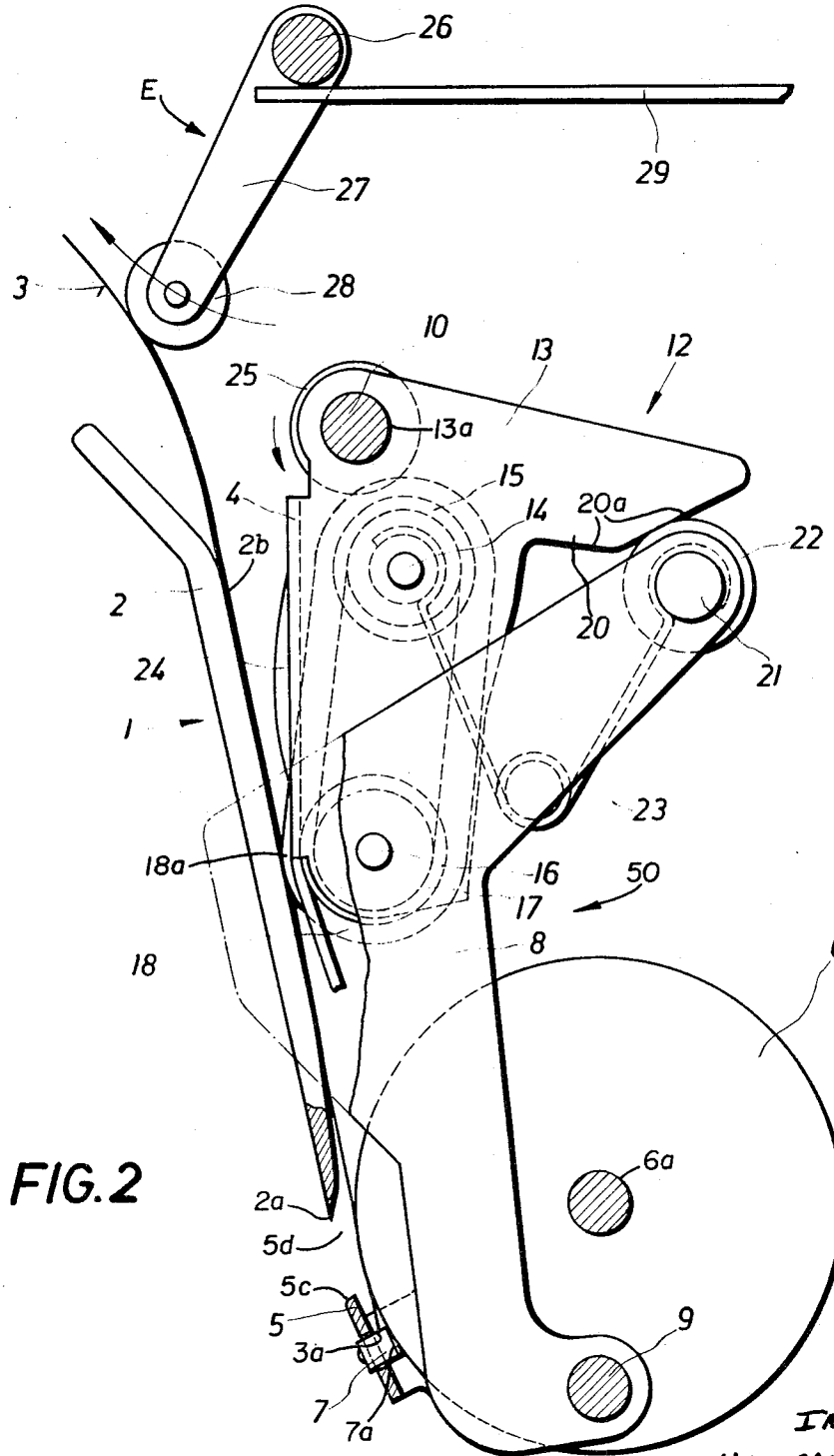


FIG. 2

INVENTORS:
WOLFGANG PRIEBELL
ARTUR FROBEL

BY: Mc. Carl S. Hukin

ATTORNEY

SHEET INSERTING APPARATUS FOR A TYPEWRITER

Filed Dec. 21, 1970 5 Sheets-Sheet 3

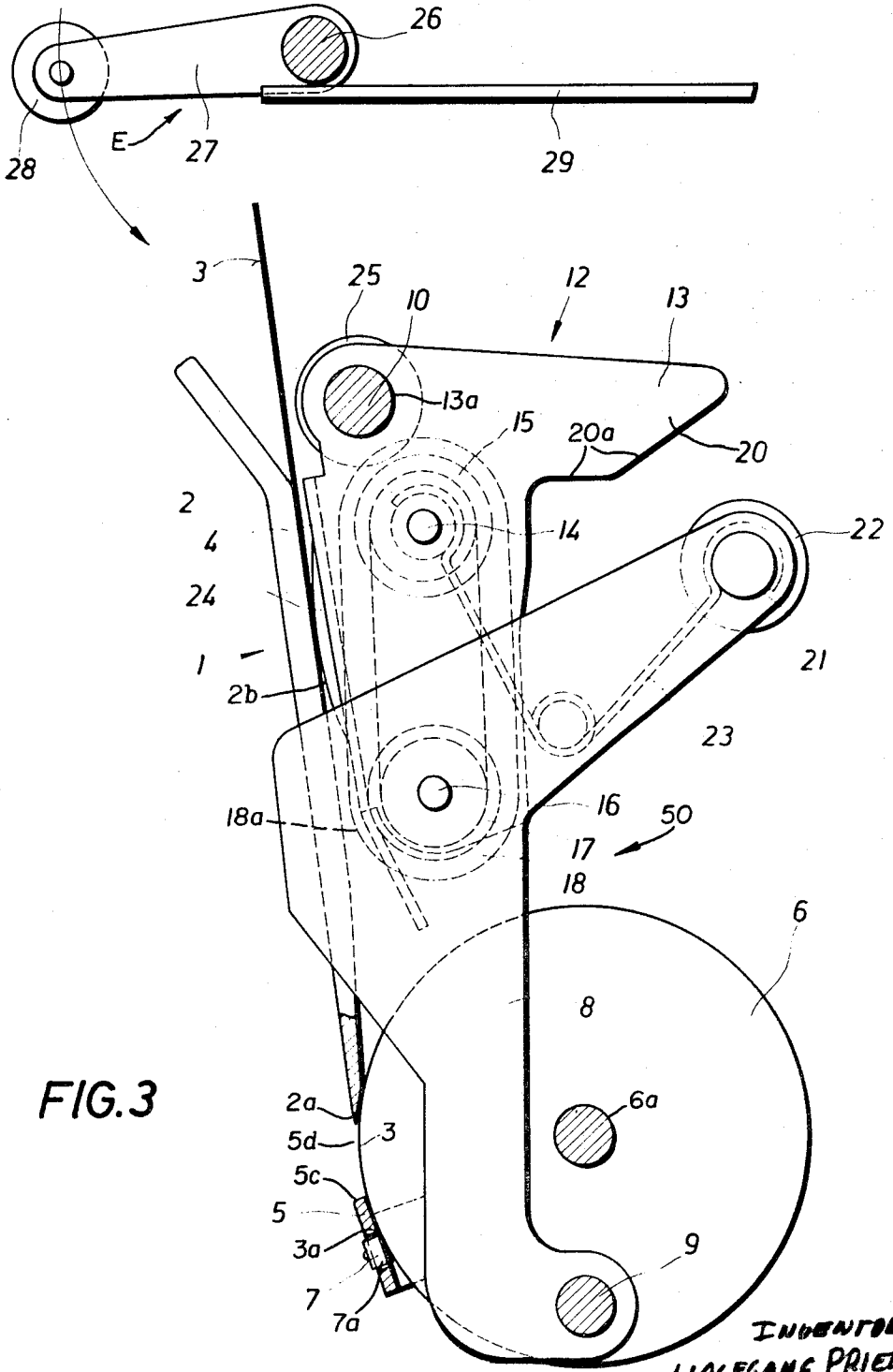


FIG. 3

INVENTORS:
WOLFGANG PRIEBEL
ARTUR FROBEL

BY: Michael J. Striker
ATTORNEY

Feb. 27, 1973 W. PRIEBELL ET AL 3,718,245

SHEET INSERTING APPARATUS FOR A TYPEWRITER

Filed Dec. 21, 1970 5 Sheets-Sheet 4

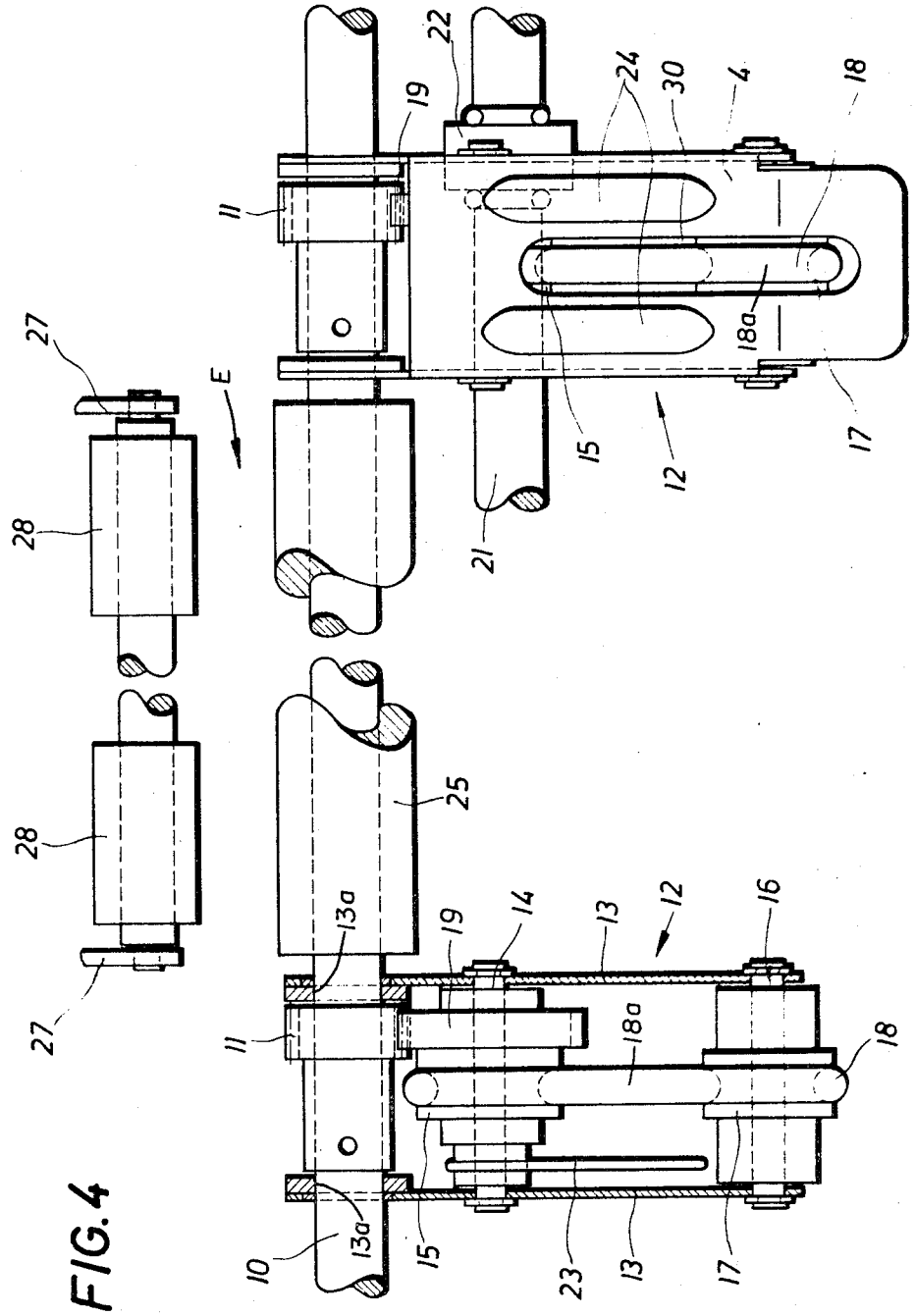


FIG. 4

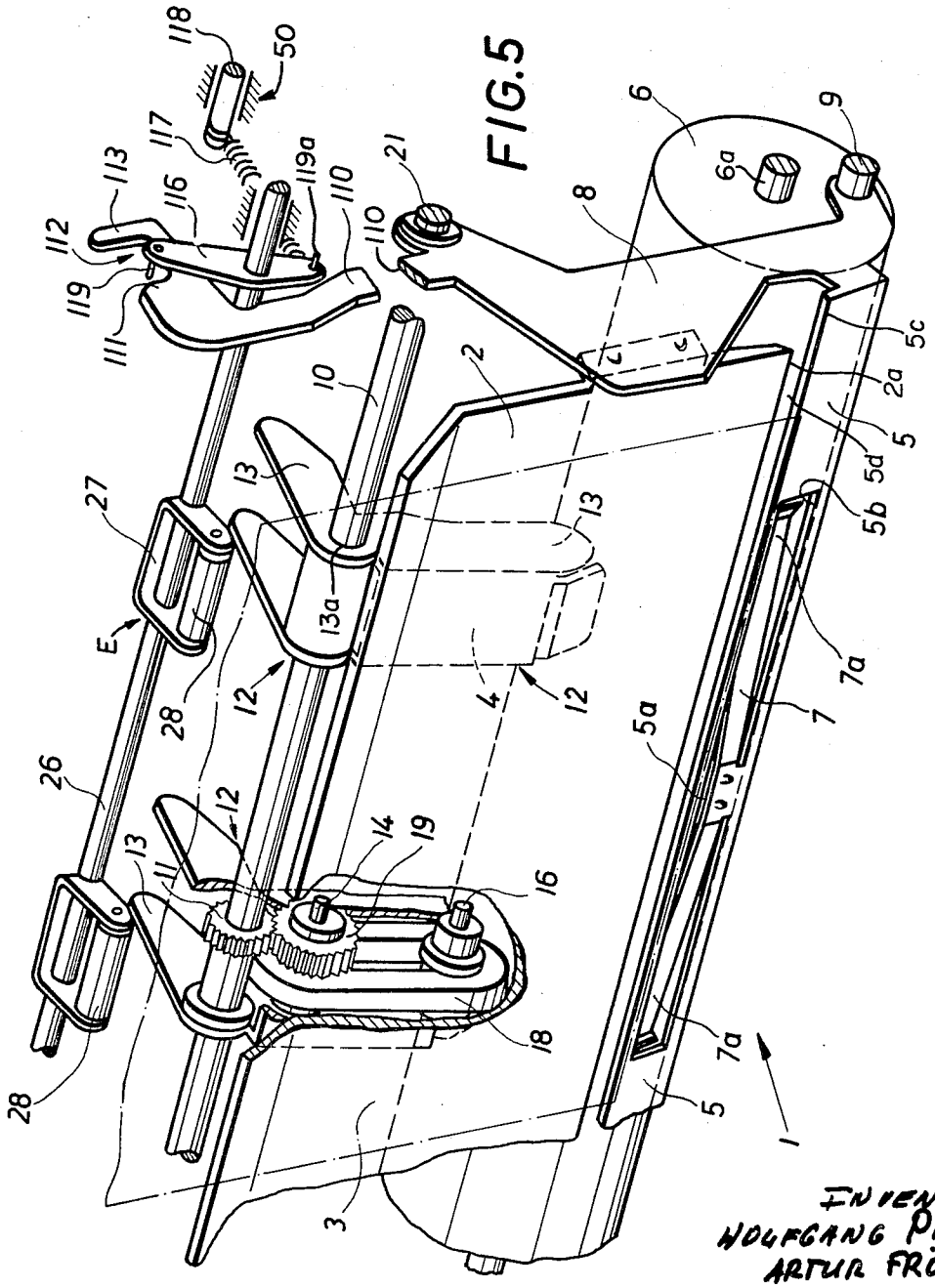
INVENTORS:
WOLFGANG PRIEBEL
ARTUR FROBEL
BY
ATTORNEY

Feb. 27, 1973 W. PRIEBELL ET AL 3,718,245

SHEET INSERTING APPARATUS FOR A TYPEWRITER

Filed Dec. 21, 1970 5 Sheets-Sheet 5

FIG.5



INVENTORS
WOLFGANG PRIEBELL
ARTUR FRÖBELL
BY Karl L. Stricker
ATTORNEY

United States Patent Office 3,718,245 Patented Feb. 27, 1973

3,718,245

SHEET INSERTING APPARATUS FOR A TYPEWRITER

Wolfgang Priebel, Aistaig, and Arthur Frobel, Oberndorf, Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany

Filed Dec. 21, 1970, Ser. No. 99,770
Claims priority, application Germany, Dec. 22, 1969, P 19 64 141.9
Int. Cl. B41j *13/00*
U.S. Cl. 197—127 10 Claims

ABSTRACT OF THE DISCLOSURE

A sheet inserting apparatus is attached to a typewriter and has holding means movable between an open end position, in which a sheet can be inserted, and a closed end position in which the sheet is pressed against the platen of the typewriter. Transporting means are connected with the holder means for movement in timed relation, and drive the inserted sheet in an intermediate position of the holder means, to a correct position for being typed upon, before the sheet is clamped against the platen.

BACKGROUND OF THE INVENTION

The U.S. Pat. 3,391,775 discloses a sheet inserting apparatus for a typewriter, by which a sheet is inserted by means of a transporting roller. It is necessary that the operator of the machine inserts the sheet into the region of the transporting roller and the corresponding pressure roller, so that the sheet is gripped and transported to the position required for typing.

It is also possible to lift the pressure roller from the transporting roller, and to insert the sheet manually. The sheets may be checks, receipts, credit cards, and the like, and are often not in perfect condition, for example they may be bent, folded, or wrinkled. A sheet in this condition may not reach its correct position in which it is to be typed upon, but gets stuck in the sheet inserting apparatus in a wrong position in which it is not possible to clamp the sheet against the platen of the typewriter, and to type on the sheet. Manual adjustment of the sheet to the correct position abutting a stop, is difficult, and is undesirable since it requires time and a certain skill.

SUMMARY OF THE INVENTION

It is one object of the invention to provide a sheet inserting apparatus which assures the automatic placing of an inserted sheet in the correct position in which it is to be typed.

Another object of the invention is to provide a sheet inserting apparatus which is suitable for use with crumpled or folded sheets.

Another object of the invention is to provide a sheet inserting apparatus by which any inserted sheet is reliably clamped against the platen in the position required for typing.

With these objects in view, the present invention provides a sheet inserting apparatus by which any sheet, independently of its condition and position after manual insertion, is reliably transported to an abutment on which it rests in the desired position for typing before being clamped to the platen.

In accordance with the invention, a transporting means is provided which continuously moves in the inserting direction, and is mounted in supporting means which are operated by sheet holding means moving between an open and a closed position, to place the transporting means for a short period of time in frictional contact with the sheet so that the same is transported to the desired position abutting the stop means.

One embodiment of the invention comprises sheet holder means having a guide surface confronting the platen of the typewriter or like business machine, and being mounted for movement between an open position spaced from the platen for guiding a sheet in an insertion direction along the guide face to a typing position abutting the sheet holder means, an intermediate position, and a closed end position for clamping an inserted sheet in the typing position against the platen; supporting means mounted for movement toward and away from the guide surface; transporting means mounted on the supporting means for transporting movement in the insertion direction, and being located opposite the guide surface and a sheet thereon; drive means for the transporting means; and control means connecting the sheet holder with the supporting means for movement in timed relation.

The arrangement is such that the supporting means hold the transporting means in an inoperative position spaced from the guide surface and a sheet thereon, when the sheet holder means is in the open end position, so that the sheet can be easily inserted into the sheet holder means. Thereupon, when the sheet holder means is moved to an intermediate position, the transporting means are moved toward the guide surface to an operative position for engaging the sheet thereon, and for transporting the sheet in the insertion direction to the typing position. Finally, the transporting means is held spaced from the sheet when the sheet holder means is in the closed end position in which it is undesirable to frictionally drive the sheet any further.

In the preferred embodiment of the invention, the transporting means includes at least one endless round friction belt which is guided over two pulleys mounted in a supporting frame. The supporting frame is mounted for angular movement about a drive shaft which drives the pulley of the transporting means.

For angularly displacing the supporting frame, or frames, in accordance with the position of the sheet holding means, each supporting frame is provided with a cam portion which cooperates with cam follower means operated by the sheet holding means, and preferably including a rod connecting lateral walls of the sheet holder means and carrying cam follower rollers cooperating with the cam portions of the supporting frames of the transporting means. The operation is such that during movement of the sheet holder means from the open end position to the closed end position, not only the inserted sheet is moved toward the transporting means, but also the transporting means is moved toward the sheet so that the short frictional cooperation between the transporting means, more particularly a friction belt, and the inserted sheet is improved.

Each supporting frame is preferably provided with an additional cam portion which cooperates with the front wall of the sheet holding device, and more particularly with the guide surface at the rear thereof, to press the supporting frame away from the front wall of the sheet holding means to a position in which the transporting means do not engage the sheet when the sheet holding means approaches its closed end position in which the sheet is clamped, and cannot be further transported.

In order to assure a movement of the inserted sheet perpendicular to the abutment means which stop the movement of the sheet, it is preferred to provide two supporting frames with corresponding transporting means to engage both marginal portions of the inserted sheet.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be

best understood from the following description of specific embodiments when read in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevation of an embodiment of the invention shown in an open end position for the insertion of a sheet;

FIG. 2 is a side elevation of the embodiment of FIG. 1 illustrating the apparatus in an intermediate position during movement toward a closed end position;

FIG. 3 is a side elevation illustrating the embodiment of FIGS. 1 and 2 in the closed end position;

FIG. 4 is a fragmentary front view, partially in section, of the embodiemnt of FIGS. 1 and 2, the sheet holder means being omitted for the sake of clarity; and

FIG. 5 is a fragmentary perspective front view of the apparatus.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIGS. 1 to 3 show a sheet holder means **1** having a front wall **2** facing the operator of the typewriter or other printing machine **50** which has a platen **6** mounted on a shaft **6***a*. A sheet **3**, such as a receipt, is manually inserted into the space rearwardly of the front wall **2**, and forwardly of the front walls **4** of supporting frame **12**, as best seen in FIGS. 1 and 5. Sheet holder means **1** has two lateral walls **8** secured to front wall **2**, and connected by a rod **21** carrying two cam follower rollers **22**. A pressure bar **5** is also secured to the walls **8**, and has a center portion **5***a* to which the middle portion of a leaf spring **7** is secured so that the arms **7***a* of leaf spring **7** pass through cutouts **5***b* in the pressure bar **5** and resiliently abut the surface of platen **6**. Between the upper edge **5***c* of pressure bar **5** and the lower edge **2***a* of front wall **2**, a space or window **5***d* is left free permitting typing on a sheet **3** clamped in the position of FIG. 3 against the platen **6**. In the intermediate position of the sheet holder means **1** shown in FIG. 2, an inserted sheet **3** can abut in a typing position with its lower edge on the leaf spring arms **7***a* which serve as abutment means for the sheet **3**.

The sheet holder means **1**, and more particularly the lateral walls **8**, are mounted for angular movement about stationary pivots **9** between the open end position shown in FIG. 1, the closed end position shown in FIG. 3, and an intermediate position shown n FIG. 2. The arms **7***a* of leaf spring **7** resiliently abut the platen **6** in all three positions of the sheet holder means **1**. Consequently, the bottom edge **3***a* of a sheet **3** inserted into the sheet holder means **1** in the open position of FIG. 1, will rest on the arms **7***a* of leaf spring **7** when properly inserted. In the closed end position of FIG. 3, the pressure bar **5** presses the bottom portion of an inserted sheet **3** against the surface of the cylindrical platen **6**, and in order to assure the necessary clamping by pressure bar **5**, in the typing position of sheet **3**, it is necessary that the bottom edge **3***a* of sheet **3** reliably abuts the arms **7***a* of leaf spring **7** which constitutes a stop for the inserted sheet **3**. Sheet **3** is again released for removal from the sheet holder means **1** when the sheet holder means **1** is moved from the closed end position shown in FIG. 3 to the open end position shown in FIG. 1.

A drive shaft **10** is driven by a motor, not shown, to rotate in clockwise direction as viewed in FIGS. 1 to 3 and 5. Drive shaft **10** continuously rotates, and is mounted in bearings, not shown, of the machine frame, not shown, of machine **50**. As shown in FIGS. 4 and 5, drive shaft **10** fixedly carries two axially spaced gears **11** which rotate with drive shaft **10**, and respectively mesh with gears **19** respectively mounted in two supporting frames **12**. Each supporting frame **12** has two lateral walls **13** formed with bearing bores **13***a* through which shaft **10** passes, so that each supporting frame **12** can be freely turned about drive shaft **10**. Gears **11** and **19** remain in meshing engagement in all angularly displaced positions of supporting frames **12**, since gears **19** roll on gears **11** when the supporting frames **12** are angularly displaced.

The lateral walls **13** of each supporting frame **12** support a shaft **14** on which not only gear **19**, but also a pulley **15** is secured for simultaneous rotation. Pulley **15** cooperates with another pulley **17** mounted on a shaft **16** supported by lateral walls **13**. An endless belt **18** passes about pulleys **15** and **17**, and is driven by pulley **15** to move in counterclockwise direction as viewed in FIGS. 1 to 3 so that the portion **18***a* of belt **18** confronting the rear guide surface **2***b* of front wall **2** of sheet holder means **1**, moves downward in the insertion direction of sheet **3**. As best seen in the right-hand portion of FIG. 4, the front wall **4** of each supporting frame **12** has a cutout **30** through which portion **18***a* of the downwardly moving run of the endless belt **18** projects outward, as also shown in FIG. 2. Belt **18** is a rubber belt of circular cross-section, but other material having a high friction coefficient could also be used.

When supporting frames **12** are angularly displaced about shaft **10**, the endless belts **18** and pulleys **15**, **17**, which constitute transporting means for sheet **3** move with the supporting frames **12** toward and away from the rear guide surface **2***b* of front wall **2**, which is covered by an inserted sheet **3**.

At least one lateral wall **13** of each supporting frame **12** has a cam portion **20**, which cooperates with cam follower rollers **22** carried by a rod **21** which connects the upper ends of the two lateral walls **8** of the sheet holder means **1**, as shown in FIGS. 1 to 4. Each of the two rollers **22** cooperates with a first cam portion **20** and its camming edge **20***a* so that both supporting frames **12** with the sheet transporting belts **18** are angularly displaced about shaft **10**. Rod **21** and cam follower rollers **22** constitute follower means for the first cam portions **20**. Between shaft **14** of each supporting frame **12**, and the rod **21**, which moves with the sheet holder means **1**, a torsion wire spring **23** is arranged so as to urge the respective supporting frame **12** to turn in clockwise direction about shaft **10**, and to move the camming edge **20***a* of cam portion **20** into engagement with the respective cam follower roller **22**.

The effect of spring **23** is increased by the tangential force produced at the meshing point of each pair of gears **11** and **19** during rotation of drive shaft **10** for driving the sheet transporting means **15**, **17** and **18** through the transmission means constituted by gears **11**, **19**.

The front walls **4** of each supporting frame **12** are provided with two curved forwardly projecting second cam portions **24**, best seen in FIGS. 1 and 4, which are arranged on opposite sides of the respective slot **30** through which the friction belt **18** projects. As is best seen in FIG. 3, in the closed end position of sheet holder means **1**, the second cam portions **24** of each supporting frame **12** abut the inserted sheet **3** and press the same against the rear guide surface **2***b* of front wall **2** so that the supporting frames **12** are held in a position in which the projecting and effective portion **18***a* of friction belt **18** cannot engage the sheet **3**. However, cam portions **24** engage the sheet **3** and the front wall **2** before the sheet holder means **1** arrives in the closed end position of FIG. 3, so that the supporting frames **12** are gradually pushed away from front wall **2**. Elements **21**, **22**, **20**, **23** and **24** constitute control means connecting the sheet holder means **1** with the supporting frames **12** for movement in timed relation.

A sheet ejecting device E is provided above the shaft **10**, and corresponds to the ejector arrangement disclosed in U.S. Pat. 3,391,775.

A rubber roller **25**, not shown in FIG. 5, is secured to a central portion of the driven and rotating shaft **10**. Above and parallel to drive shaft **10**, an ejector shaft **26** is mounted on the frame of the machine **50**. Ejector shaft **26** has arms **27** on which pressure rollers **28** are mounted for rotation. A stationary guide plate **29** is located above

shaft **10** and under ejector shaft **26** for guiding ejected sheets **3** into a receptacle, not shown. At least one lateral wall **8** of the sheet holder means **1** has an extended portion **110** formed with a cutout **112** bounded on one side by a shoulder **111** and on the other side by a projection **113**, as shown in FIG. 5. A pin **119** is located in the cutout **112** and cooperates with shoulder **111** to form a lost motion connection. Pin **119** is secured to one arm of a double-armed lever **116**, which is secured to ejector shaft **26**, and has another end connected with a pin **119***a* by a spring **117** with a fixed pin **118** secured to the frame of the machine **50**.

The lost-motion connection between pin **119** and cutout **112** is such that the pressure rollers **28** will be in the raised inoperative position shown in FIG. 3 when the sheet holder means **1** is in the closed end position. When the sheet holder means **1** is manually tilted to the open end position shown in FIG. 1, the arms **27** with pressure rollers **28** will turn to a sheet ejecting position abutting a sheet **3** guided over transporting roller **25**.

OPERATION

Assuming that the sheet holder means **1** is in the open end position shown in FIG. 1, a sheet **3** is manually inserted, and has to move to a position in which its bottom edge **3***a* abuts the abutment formed by the arms **7***a* of spring **7**, as shown in FIG. 2. However, it is possible that a crumpled or folded sheet **3** does not reach the abutment spring **7**, but is stuck on the front wall **2**, or on the platen **6**, and cannot drop down to a position in which its bottom edge **3***a* abuts abutment spring **7** so that, if the sheet holder means **1** would now be moved to the closed end position shown in FIG. 3, the bottom portion of sheet **3** would not be properly clamped against the platen **6** by pressure bar **5**, so that the sheet **3** could not be imprinted by typed characters in the proper position.

When the sheet holder means **1** with front wall **2**, and lateral walls **8** is manually turned by the operator in clockwise direction about pivot **9**, the rear guide surface **2***b* of front wall **2** urges the sheet **3** rearward. At the same time, control means constituted by rod **21** and cam follower rollers **22** move rearwardy with the lateral walls **8** of sheet holder means **1** to which rod **21** is secured, so that due to the action of springs **23**, the camming edges **20***a* of the cam portions **20** of both supporting frames **12** engage the cam follower rollers **22** which causes turning of the supporting frames **12** in clockwise direction about drive shaft **10**. Due to the angular displacement of supporting frames **12**, the friction belts **18** are moved toward the front wall **2**, and consequently toward the sheet **3** which is between front wall **2**, and the front walls **4** of supporting frames **12**. In the intermediate position of the sheet holder means **1** shown in FIG. 2, the downwardly moving portions **18***a* of friction belts **18** engage sheet **3** frictionally serving as a friction means and transport sheet **3** downward until its bottom edge abuts the arms **7***a* of spring **7** in the position shown in FIG. 2. Spring arms **7***a* serve as abutment means for the sheet **3**.

When the sheet holder means **1** is further manually turned to the closed end position as shown in FIG. 3, the front wall **2**, and the sheet **3** thereon, engages the cam portions **24** of the supporting frames **12** so that both supporting frames **12** are turned in counterclockwise direction about drive shaft **10** to a position in which the downward moving forwardly projecting portions **18***a* of friction belts **18** are spaced from the inserted sheet **3** so that the friction belts **18** cooperate with sheet **3** for transporting the same only for a very short period of time, as required for moving the sheet **3** in the insertion direction to the position in which its bottom portion **3***a* can be clamped by pressure bar **5**. An engagement between friction belts **18** and an inserted sheet **3** already clamped to the platen **6**, is undesirable, since the sheet **3** may be deformed, or smudged, which is prevented by the cam portions **24** of the supporting frames **12**.

After a line or more has been typed through the window **5***d* between the lower edge **2***a* of front wall **2** and the upper edge **5***c* of pressure bar **5**, as best seen in FIG. 3, sheet holder means **1** opens to the position shown in FIG. 1 in which the imprinted sheet **3** must be ejected. As best seen in FIG. 3, the clamped sheet **3** is located under the pressure roller **28**, and when the sheet holder means **1** moves to the open position shown in FIG. 1, the arms **27** are turned by shaft **26** under the control of a lateral wall **8**, extension **110**, and double-armed lever **116**, see FIG. 5, to a position in which the sheet **3** is bent into engagement with transporting rollers **25**, and transported by rollers **25**, **28** out of the sheet holder means **1**, as best seen in FIG. 1. The leading edge of the ejected sheet **3** is guided by guide plate **29** toward a receptacle, not shown. Even during transport of the imprinted sheet **3** by transporting rollers **25**, a new sheet **3'** can be inserted into the sheet holder means **1**, and will drop toward the abutment spring **7** as soon as the preceding sheet **3** has been ejected.

It is evident that instead of an endless friction belt **18** guided over driven pulleys **15**, **17** a friction wheel, not shown could be used on each supporting frame **12**. It is also possible to construct the control means **21**, **22**, **20** by which the supporting frames **12** are operated in timed relation with the sheet holder means **1**, in such a manner that the cam portions **24** can be omitted. Drive shaft **10** is advantageously used for transporting the inserted sheet **3** in the insertion direction, and for ejecting the imprinted sheet **3**, as described above, and can be continuously driven by a motor, not shown, or driven in accordance with an operational cycle of a business machine **50**.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other sheet inserting apparatus for business machines differing from the apparatus described above.

While the invention has been illustrated and described as embodied in a sheet inserting apparatus including friction belts **18** for transporting an inserted sheet **3** to a correct position for receiving typed imprints, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims:

1. Sheet inserting apparatus for a typewriter having a platen, comprising sheet holder means having a guide surface confronting said platen, and being mounted for movement between an open end position spaced from said platen for guiding a sheet in an insertion direction along said guide surface to a typing position, an intermediate position, and a closed end position for clamping an inserted sheet in said typing position against said platen; abutment means for stopping in said typing position, a sheet moving in said insertion direction; supporting means mounted for movement toward and away from said guide surface; transporting means mounted on said supporting means for transporting movement in said insertion direction and being located opposite said guide surface and a sheet thereon; motor driven drive means for continuously operating said transporting means; and control means connecting said sheet holder means with said supporting means for movement in timed relation so that said supporting means hold said transporting means in an inoperative position spaced from said guide surface and from from a sheet thereon when said sheet holder means is in said open end position, move, when said sheet holder means is shortly moved through said intermediate posi-

tion, said transporting means toward said guide surface to an operative position for engaging the sheet thereon and for transporting the sheet in said insertion direction to said typing position, and hold said transporting means spaced from the sheet when said sheet holder means is in said closed end position.

2. Sheet inserting apparatus as claimed in claim 1, wherein said transporting means include at least one pair of pulleys rotatably mounted on said supporting means, and an endless transporting belt guided over said pulleys and having an endless outer surface for frictionally engaging said sheet.

3. Sheet inserting apparatus as claimed in claim 2, wherein said drive means include a drive shaft, and transmission means connecting said drive shaft with said pulleys; and wherein said supporting means are freely turnably mounted on said drive shaft for angular movement under the control of said control means.

4. Sheet inserting apparatus as claimed in claim 1 wherein said control means include a cam portion of said supporting means having a camming surface, and a follower portion of said sheet holder means cooperating with said cam portion for displacing said supporting means with said transporting means during movement of said sheet holder means.

5. Sheet inserting apparatus as claimed in claim 1 wherein said sheet holder means include a front wall and two lateral walls; wherein said control means include a follower means between said lateral walls, and a cam portion secured to said supporting means and cooperating with said follower means for displacing said supporting means with said transporting means during movement of said sheet holder means with said follower means.

6. Sheet inserting apparatus as claimed in claim 5 wherein said follower means include a rod connecting said lateral walls, and follower roller means on said rod cooperating with said cam portion.

7. Sheet inserting apparatus as claimed in claim 6 wherein said control means include a spring connecting said rod with said supporting means for urging said supporting means with said transporting means toward said guide surface and sheet.

8. Sheet inserting apparatus as claimed in claim 1 wherein said control means include a first cam portion secured to said supporting means, a second cam portion secured to said supporting means opposite said guide surface, follower means secured to said sheet holder means and cooperating with said first cam portion for moving said supporting means with said transporting means between said inoperative and operative positions; and wherein said sheet holder means is engaged by said second cam

portion during movement between said intermediate position and said closed end position so that said supporting means with said transporting means is moved away from said guide surface and the sheet thereon during movement of said sheet holder means to said closed end position, and said transporting means is spaced from the sheet in said closed end position.

9. Sheet inserting apparatus as claimed in claim 1 wherein said drive means include a drive shaft, and transmission means connecting said drive shaft with said transporting means; wherein said supporting means include a plurality of supports mounted on said drive shaft for free angular movement; wherein said transporting means include a plurality of friction means respectively mounted on said supports driven by said transmission means; wherein said control means include cam portions secured to said supports, respectively, a cam follower rod secured to said sheet holder means and extending parallel to said drive shaft, and a cam follower roller for each support mounted on said rod cooperating with said cam portions, respectively for moving said supports with said friction means angularly about said drive shaft so that said friction means are moved between said inoperative and operative positions.

10. Sheet transporting apparatus as claimed in claim 9 wherein said control means include other cam portions secured to said supports, respectively, and engaging said sheet holder means during movement of said sheet holder means from said intermediate position to said closed end position so that said supports and friction means are spaced from said guide surface and said sheet in said closed end position of said sheet holder means.

References Cited

UNITED STATES PATENTS

Re. 21,050	4/1939	Crosman	197—128
2,836,279	5/1958	Fischer	197—128
689,423	12/1901	Schmitt	197—130
2,139,169	12/1938	Muller	197—128
2,288,797	7/1942	Fettig	197—127 R
2,887,208	5/1959	Cross	197—130
2,963,138	12/1960	Motte et al.	197—128
3,001,470	9/1961	Nessel	197—128 X
3,353,649	11/1967	Templeton	197—127 R
3,391,775	7/1968	Frobel	197—127 R

ERNEST T. WRIGHT, JR., Primary Examiner

U.S. Cl. X.R.

197—137, 138 R