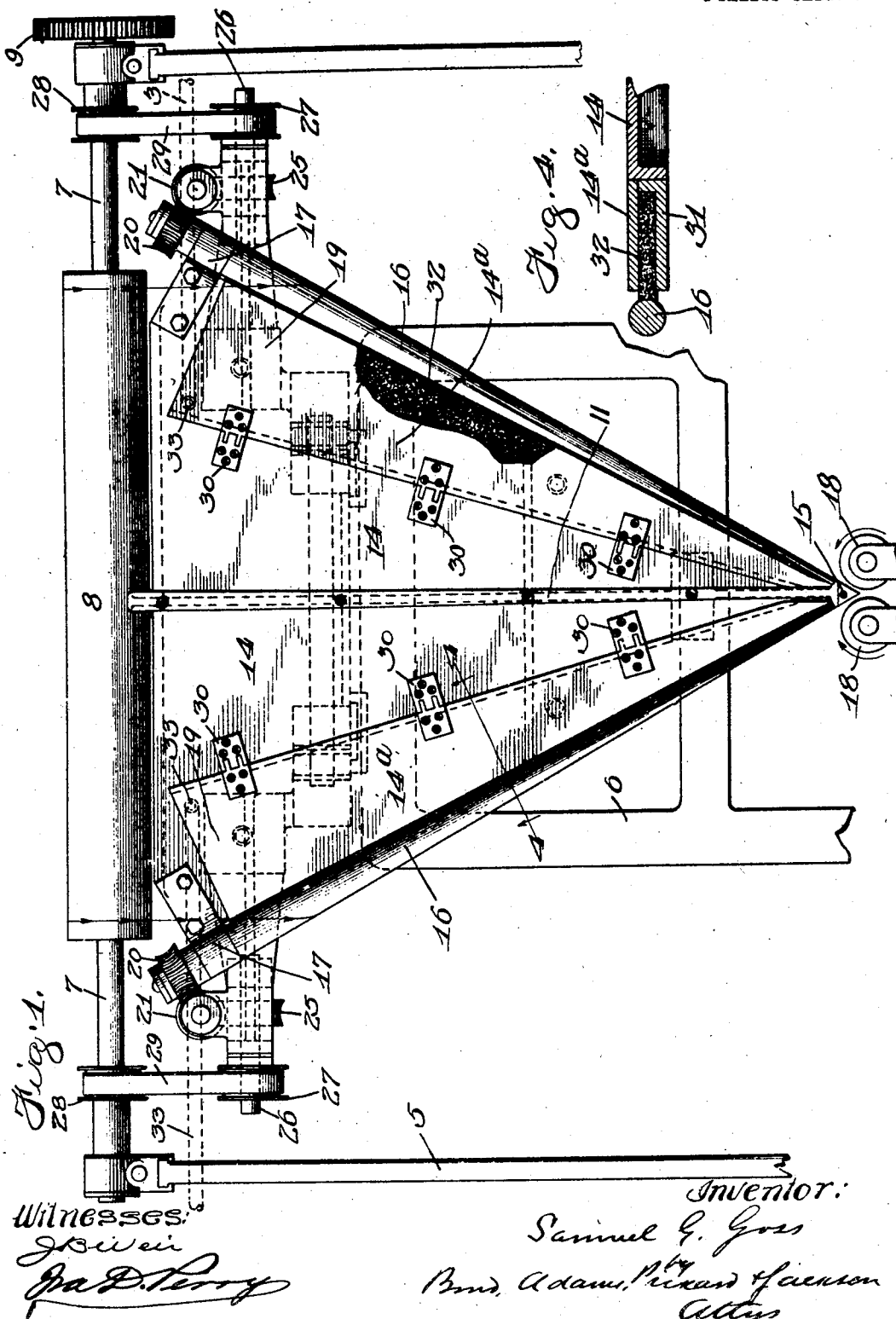


No. 836,751.

PATENTED NOV. 27, 1906.

S. G. GOSS.
FOLDING MACHINE.
APPLICATION FILED JULY 3, 1905.

3 SHEETS—SHEET 1.

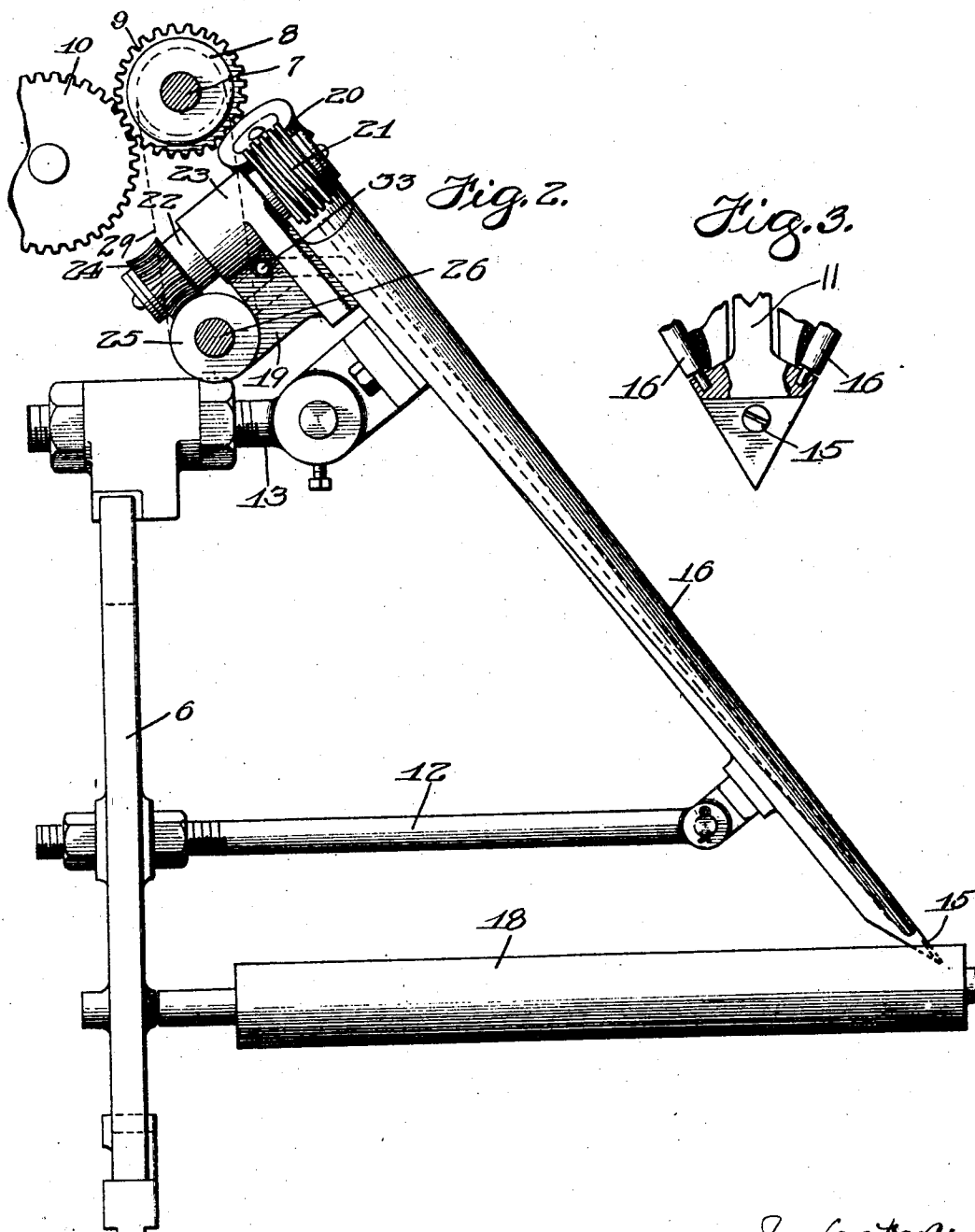


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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

SAMUEL G. GOSS, OF CHICAGO, ILLINOIS, ASSIGNOR TO GOSS PRINTING PRESS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FOLDING-MACHINE.

No. 836,751.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed July 3, 1905. Serial No. 268,234.

To all whom it may concern:

Be it known that I, SAMUEL G. GOSS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Folding-Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates particularly to improvements in the former or V-shaped internal guide over which a web of paper is folded longitudinally on the run with the coöperation of a pair of folding-rollers at its apex; and the object is to prevent the smutting or offsetting of the print upon the paper as it passes over the former.

To that end my invention, generally described, consists in forming the sides of this V-shaped former or internal guide of a pair of converging rollers, preferably spindle-shaped, journaled at their upper ends in suitable bearings and at their lower ends in suitable bearings a short distance above the lower end or apex of the former and so placed that the outer sides of these rollers form, with the point or apex of the former, the sides of the complete V-shaped internal guide over which the paper is folded by means of the usual folding-rollers below the apex of the former. These rollers are rotated very slowly in comparison with the surface speed of the paper and are supplied at a suitable part of their surface away from the part contacted by the paper with a sufficient supply of oil to prevent the smutting or offsetting of the ink on the surface of the webs next to the former as the webs pass over them.

In the drawings, Figure 1 is a front elevation of a former with part of the plate broken away. Fig. 2 is an enlarged side elevation of the devices shown in Fig. 1. Fig. 3 is an enlarged detail, being a view of the lower portion of the former with the plate broken away to show the way in which the rollers forming the side edges of the former are journaled at their lower ends; and Fig. 4 is a detail, being a section on line 4 4 of Fig. 1.

Referring to the drawings, 5 6 indicate portions of the folder-frame.

7 indicates a shaft upon which is mounted a roller 8. The shaft 7 is journaled in the usual manner in the folder-frame and is driven in the usual manner. In Fig. 2 gears

9 10 are shown as indicating driving mechanism for the shaft 7.

11 indicates a V-shaped internal guide or former, which is supported in the usual manner from the folder-frame 6 by adjustable connections 12 13. The former 11 is provided with top plates 14 14 and with a fold-marking point 15 at the lower end.

16 16 indicate converging rollers, preferably of spindle shape—that is, tapering toward their lower ends—which are journaled near their upper ends in supports 17 17, secured to the former 11, and at their lower ends are journaled, as is best shown in detail Fig. 3, in suitable bearings just above the point 15 of the former. These rollers 16 are so located and shaped that they form, with the sides of the fold-marking point 15, the outside edges of the V-shaped former, over which the paper travels in being folded longitudinally on the run. The shape of the former, therefore, as will be seen, with these rollers forming the outer edges of the internal guide or support over which the paper runs, is substantially the same as the well-known V-shaped internal guide or former.

18 indicates the usual fold-laying rollers between which the paper is folded and which coöperate with the former 11 to give the paper its longitudinal fold in the usual manner.

19 indicates castings, which are supported upon the folder-frame 6 behind the former 11.

20 indicates worm-gears which are secured upon the upper ends of the rollers 16.

21 indicates worm-gears which are mounted upon stop-shafts 22 and which engage the worm-gears 20. The stop-shafts 22 are journaled in suitable bearings 23, which are supported upon the castings 19.

24 (see Fig. 2) indicates worm-gears which are secured upon the inner end of the stop-shaft 22.

25 (see Fig. 1) indicates worm-gears which are secured to shafts 26 and which mesh with the worm-gears 24. The shafts 26 are journaled in suitable supports in the castings 19 and carry near their outer ends pulleys 27.

28 indicates pulleys which are mounted upon the shaft 7 and are connected by belts 29 with the pulleys 27.

As will be obvious from the above description, when the shaft 7 is driven in the running of the press in the usual way through

the pulleys 27 28, belts 29, and worm-gears 25, 24, 21, and 20 the rollers 16 will be slowly rotated.

The plates 14 of the former are provided with hinged plates 14^a, which, as best seen in Fig. 1, are hinged at their inside edges by hinges 30 to the plates 14, so that they may be turned up to exposes the absorbent material below, hereinafter described. It will of course be understood that the hinges 30 are sunk in the plates, so that the whole surface of the plates 14 and 14^a may be flush and smooth to permit the paper to run over the former in the usual manner.

Referring particularly to the detail in Fig. 4, 31 indicates a box open at its outer edge, which is placed underneath the surface of the former 11 and upon each side thereof. These boxes, as is shown in dotted lines in Fig. 1, converge from the upper part of the former toward the bottom and are covered over the top by the hinged plates 14^a.

32 indicates absorbent material adapted to become saturated with any suitable oil and located in the boxes 31. The absorbent material 32 is preferably formed of a strip of heavy felt shaped to fit the boxes 31 and projecting beyond the outer edges of the boxes 31, so as to bear upon the inside surface of the rollers 16, as is best shown in Fig. 4, as may also be seen particularly by the broken-away portion in Fig. 1. The absorbent material 32 being saturated with any suitable oil or similar material, it will be obvious that as the rollers 16 slowly revolve their surface will be given a slight coating of oil, which is too small to in any way injure the paper as it passes over the former on the run, but which will prevent any smutting or offsetting of the ink while the paper is being folded.

The absorbent material may be supplied with oil in any suitable way—such, for instance, as by pipes 33 33, which lead from any suitable source of supply (not shown) and open at their inner ends to the absorbent material 32 near the top.

Any suitable oil may be used, such as a paraffin-oil or a mixture of paraffin-oil and machine-oil or a suitable mixture of kerosene and machine-oil.

Any suitable material operating in the same manner as an "oil," strictly so called, to prevent the smutting or offsetting of the ink may of course be used. I therefore do not confine myself to the use of "oil," strictly so called, but use the term for convenience as a generic one indicating either an oil or any similar substance having a like effect in preventing the smutting or offsetting of the ink. As the rotation of the rollers 16 is very slow, they may be rotated in either direction.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. In a longitudinal-folding mechanism, the combination with a former, of a pair of converging rollers forming the sides of said former, mechanism for rotating said rollers at a surface speed slow relatively to that of the paper to be folded, and means for supplying oil to the surface of said rollers as they rotate.

2. In a longitudinal-folding machine, the combination with a former, of converging rollers journaled on said former and forming the sides thereof, means for rotating said rollers at a surface speed slow relatively to that of the paper to be folded, and an oiled absorbent material bearing against said rollers.

3. In a longitudinal-folding mechanism, the combination with a former having a fold-creasing point, of a pair of spindle-shaped converging rollers journaled on said former and forming with the sides of said fold-creasing point the sides of said former, mechanism for rotating said rollers at a speed very slow relatively to that of the paper to be folded, and an oil-supplied absorbent material bearing upon said rollers and adapted to supply oil to the same as they rotate.

4. In a longitudinal-folding mechanism, the combination with a former having a fold-creasing point, of a pair of spindle-shaped converging rollers journaled on said former and forming with the sides of said fold-creasing point the sides of said former, mechanism for rotating said rollers at a speed very slow relatively to that of the paper to be folded, an oil-supplied absorbent material bearing upon said rollers and adapted to supply oil to the same as they rotate, and means for supplying oil to said absorbent material.

5. In a longitudinal-folding mechanism, the combination with a former having a fold-creasing point, of a pair of spindle-shaped converging rollers journaled on said former and forming with the sides of the fold-creasing point the sides of the former, mechanism adapted to rotate said rollers at a surface speed very slow as compared with that of the paper to be folded, casings on the inside of said rollers and adjacent thereto, an oil-absorbent material contained in said casings and bearing upon the inner sides of said rollers as they rotate, and means for supplying oil to said absorbent material, substantially as described.

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