May 1, 1934. M. J. HOFFMAN 1,957,167

COUPON TICKET PRINTING MACHINE

Filed Feb. 20, 1933 3 Sheets-Sheet 1

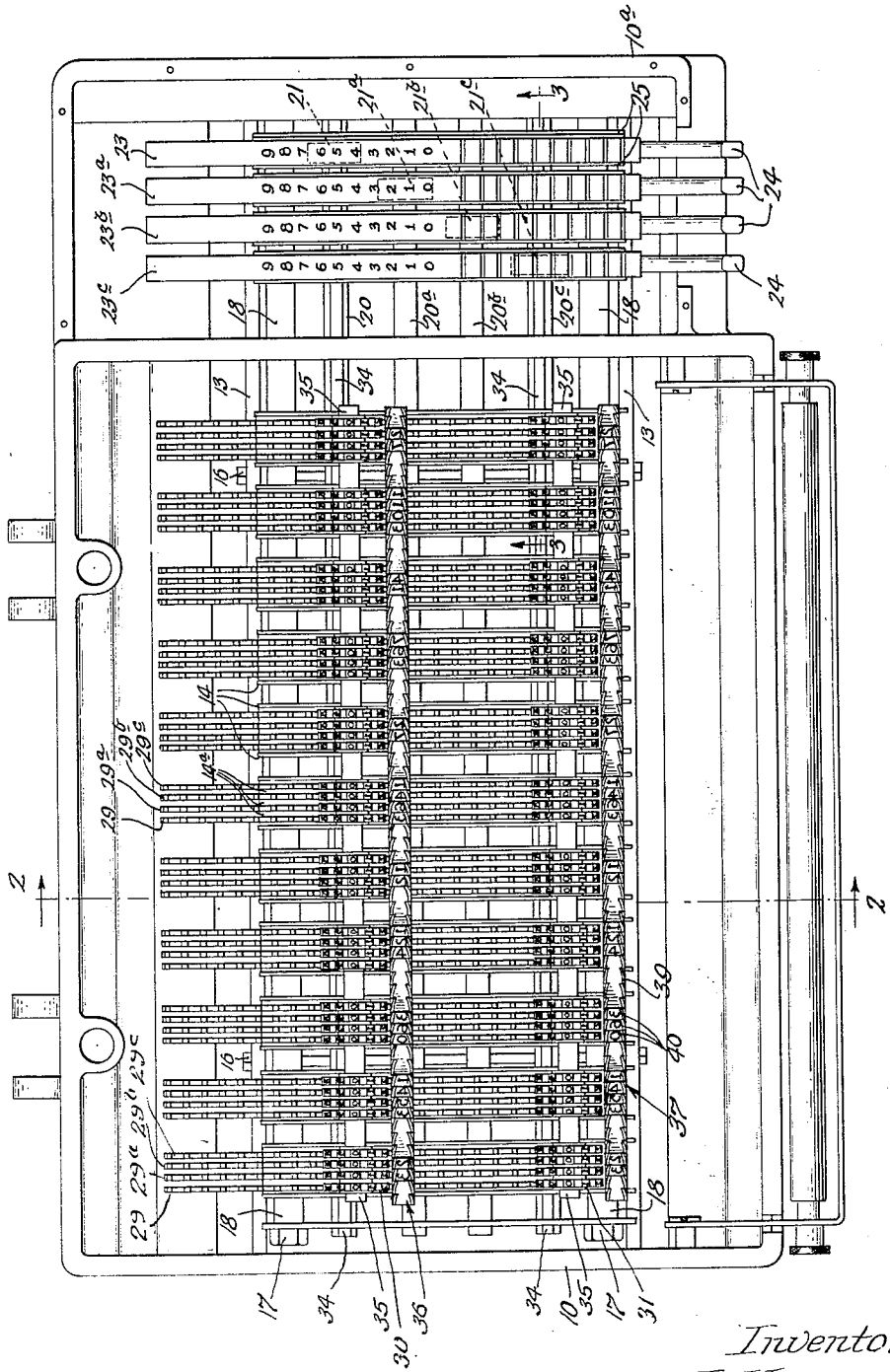


Fig. 1

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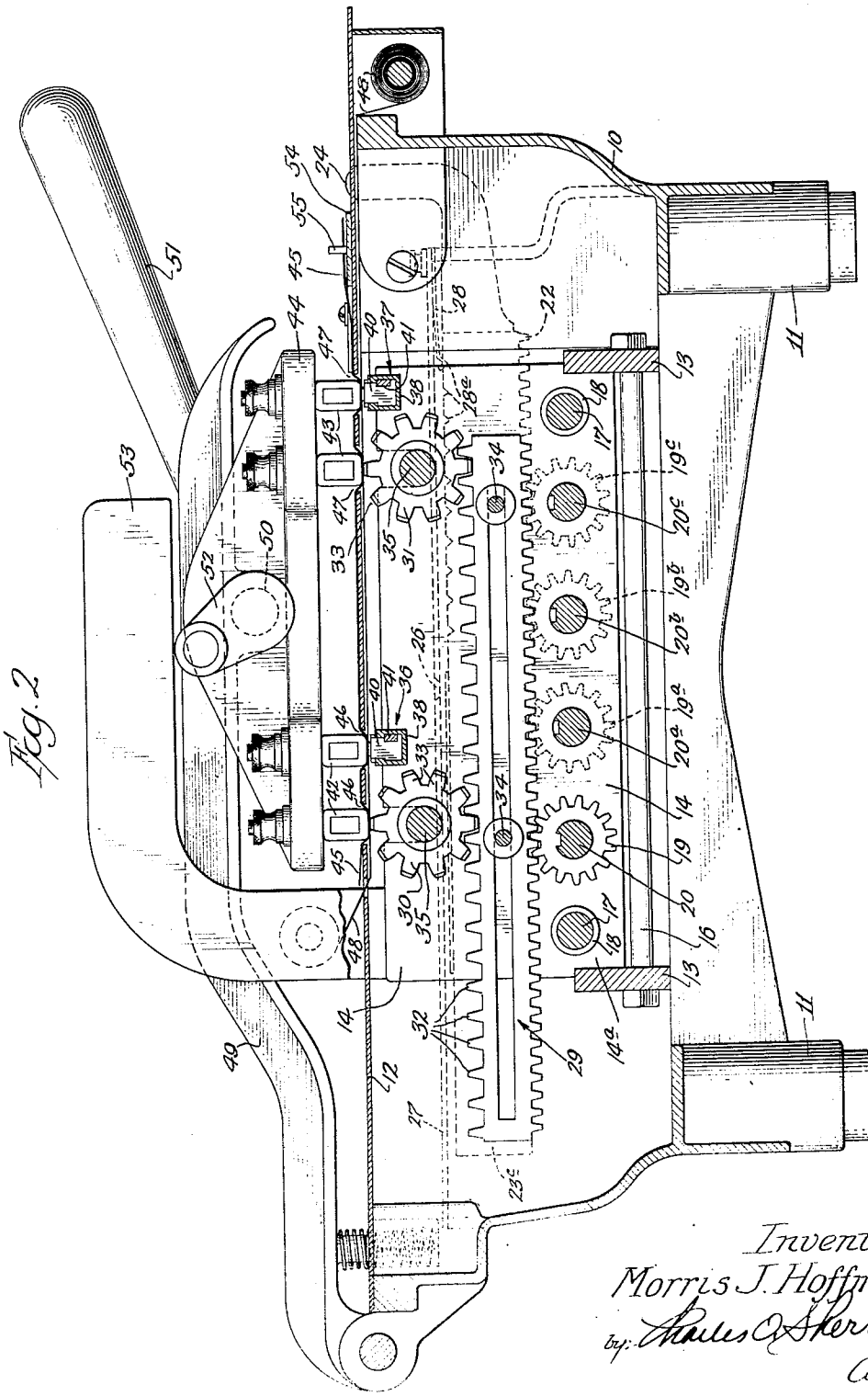


Fig. 2

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Fig. 3.

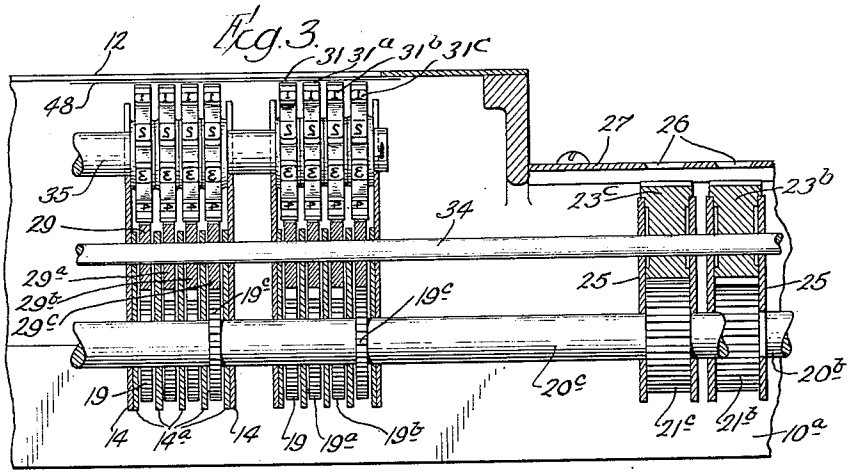


Fig. 4

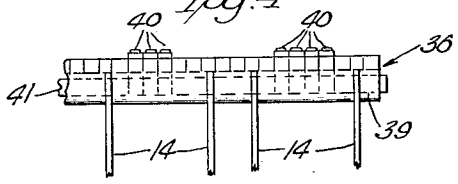


Fig. 5

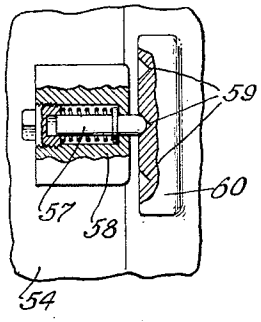


Fig. 6

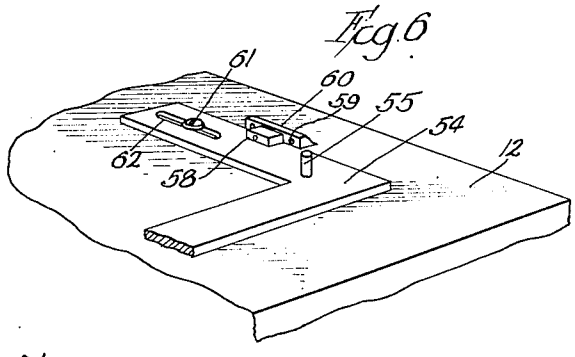
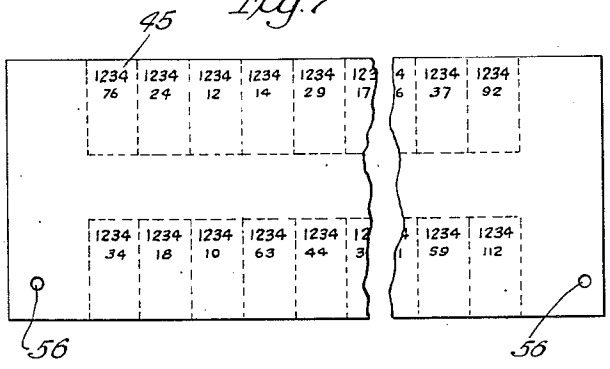


Fig. 7



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UNITED STATES PATENT OFFICE

1,957,167

COUPON TICKET PRINTING MACHINE

Morris J. Hoffman, Chicago, Ill., assignor to International Business Machines Corporation, New York, N. Y., a corporation of New York

Application February 20, 1933, Serial No. 657,531

9 Claims. (Cl. 101—90)

This invention relates to coupon ticket printing machines and its principal object is to provide two rows of type wheels wherein the type wheels are arranged in groups and having circumferentially disposed type character for printing data in two lines, and setting means for simultaneously setting into printing position selected type wheels of both rows. Another object is to combine into printing mechanism of the character above mentioned, removable and interchangeable lines of set type for printing other accompanying data.

As is well known, coupon tickets are used for keeping account of workmen's time expended in labor on articles that require several operations in their manufacture by several workmen, some of which receive more or less pay for their work than others. These tickets are scored or perforated to provide a row of coupons along each side edge of the ticket, upon which data is printed to indicate numbers, identical on all of the coupons, and other data representing the price paid for operations on the article, which price may be different on some or all of the coupons.

One object of this invention is to provide a machine wherein the groups of type wheels print similar data on the several coupons on both rows of coupons and wherein the corresponding type wheels of each group of type wheels of both rows may be simultaneously set to printing position by the setting mechanism.

Another object is to provide coupling means between the two rows of type wheels for adjusting corresponding ones simultaneously, whereby identical data will be printed by both rows of type wheels.

Other objects and advantages will appear in the following specification and this invention consists, therefore, in the several novel features hereinafter fully set forth and claimed.

The invention is clearly illustrated in the accompanying drawings in which:

Fig. 1 is a plan of a coupon ticket printing machine, with the top plate and parts thereon removed, and illustrating a simple embodiment of the present invention;

Fig. 2 is a vertical cross section thereof taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmental longitudinal section taken on the line 3—3 of Fig. 1;

Fig. 4 is a detail fragmental side elevation of a type bar and its support;

Fig. 5 is a fragmental plan, partly broken out, of a line spacer used in the machine;

Fig. 6 is a fragmental perspective view thereof, and

Fig. 7 is a fragmental face view of a coupon ticket.

Referring to said drawings, the reference character 10 designates the base of the machine which is usually rectangular in form and is provided with legs 11. The base is hollow and its upper side is closed by a thin cover plate 12 upon which the coupon ticket is placed when making the impressions thereon.

Suitably secured in the base are longitudinally extending parallel frame bars 13, between which are clamped a multiplicity of spaced apart guide strips 14, 14^a, as by tie rods 16. The guide strips may be held in spaced relation by tie rods 17 and washers 18, and in the spaces between the guide strips 14^a are pinions 19, 19^a, 19^b, 19^c, which are fixedly mounted upon shafts 20, 20^a, 20^b, 20^c that extend through the guide strips and enter an extension 10^a of the base where they are provided with pinions 21, 21^a, 21^b, 21^c that mesh with rack teeth 22 of setting members 23, 23^a, 23^b, 23^c. The setting members are in the form of bars having the rack teeth on their lower edges and finger pieces 24 on their forward ends to facilitate manipulation thereof. The setting bars are guided between spaced guide strips 25 suitably supported in the base extension 10^a. Desirably the setting bars are formed with laterally extending ribs that ride upon the upper edges of the guide strips 25. Along the length of the upper face of each setting bar are characters, such as the numerals 0 to 9, which are brought to view through an opening 26 in a top plate 27 which covers the open top of the base extension and is fastened thereto. The setting of the type wheels is accomplished by moving the setting bars forwards or backwards until the selected digit appears through the corresponding opening. Spring detents 28 secured to the base extension and arranged to engage in notches 28^a formed in the setting bars yieldably hold the setting bars in adjusted positions.

The pinions 19, 19^a, 19^b or 19^c on each shaft 20, 20^a, 20^b or 20^c, are spaced a considerable distance apart as is best indicated in Fig. 3 and those on the several shafts are arranged in stepped relation, and as shown there are four pinions 19, 19^a, 19^b, 19^c in each group that control a group of four type wheels as will be presently explained so as to print a number containing four digits. Meshing with each pinion is a rack bar 29, 29^a, 29^b or 29^c which is guided between the guide strips 14^a and serves as a coupling member and

a motion transmitting member between each pinion and two corresponding type wheels of the two rows, two of which are seen at 30, 31 in Fig. 2. Desirably the connections between the rack bars and the type wheels may comprise rack teeth 32 on the rack bar and teeth 33 on the type wheels. Preferably the rack bars are slotted longitudinally as well as the setting bars and tie rods 34 extend through the slots of all of said bars to prevent accidental displacement of the bars.

The type wheels are arranged in two parallel rows and those of each row are divided into groups of four each as shown, but this number may be varied to suit various situations. The type wheels 30, 30^a, 30^b, 30^c of each group of one row, and the corresponding type wheels 31, 31^a, 31^b, 31^c of each corresponding group of the other row mesh respectively with the rack bars 29, 29^a, 29^b, 29^c. In other words, the two type wheels 30, 31 mesh with the rack bar 29, the two type wheels 30^a, 31^a mesh with the rack bar 29^a and so on, whereby when any rack bar is adjusted back or forth the two type wheels in mesh therewith are simultaneously rotated and the corresponding type characters thereon are moved to printing position. The type characters are disposed about the peripheries of the type wheels, and in the form shown are placed on the ends of the teeth 33 of the type wheels. The characters may comprise the digits 0 to 9 and the characters on both corresponding type wheels in the two rows always occupy positions for printing the same digit in both rows so that each group of type wheels in each row prints the same or identical number. For instance if the setting bars are adjusted to print "1234", the type wheels of each group of both rows are set to print the number "1234" on each coupon.

The type wheels are rotatively mounted between the guide strips 14 on rods or shafts 35, 35 that extend through notches in the guide strips and are supported therein. If desired, the type wheels may be formed with hubs for spacing them apart.

For printing additional data on each coupon, removable and replaceable type bars 36, 37 containing set type are provided which are supported by the guide strips 14 in printing position adjacent the type wheels. Desirably the guide strips 14 are formed with two rows of aligned notches 38 in which the type bars are slidably held. The type bars may comprise channel shaped type carriers 39 and type 40 set in the carriers and locked therein by a key 41 which engages in notches formed in the type. The type 40 have type characters that print numerals whereby data such as the prices to be paid for the various kinds of labor performed on the article can be printed on each coupon adjacent the data printed by the type wheels. A number of type carriers and type may be furnished with each machine, whereby fixed prices for labor for any given article may be set up ready for use in the machine.

The impression making mechanism may of course be of any desirable form. For the purpose of illustration, impression bars 42, 43 are shown carried by a head 44 in position to press the coupon ticket (seen at 45) through slots 46, 47 in the top plate 12, and upon an ink ribbon 48 which extends across the type wheels and type bars. The head 44 is carried by two upwardly spring pressed arms 49 fulcrumed upon the back of the machine. A shaft 50 connects the head with the arms and has a handle 51 on one end and two cranks 52 on the ends that engage with brackets 53. By bearing down on the handle 51 the head is forced down, thereby pressing the impression bars upon the coupon ticket and pressing the ticket upon the ink ribbon and the ribbon upon the type characters that are in printing position. The head is raised by swinging the handle upwards and backwards.

For lining up the coupon ticket and properly locating the coupons thereof with respect to the groups of type wheels, whereby one or more impressions may be made thereon a guide 54 is provided (see Figs. 5 and 6) which has upstanding pins 55 that are adapted to enter perforations 56 in the coupon ticket. The guide 54 is adjustable toward and away from the type whereby several places on the ticket may be properly placed over the type to receive impressions therefrom. For positively locating the guide at the several places, a spring pressed pin 57 carried in a block 58 on the guide is arranged to engage in sockets 59 formed in a block 60 mounted on the top plate 12. The guide is guided by screws 61 secured in the top plate and engaging in slots 62 formed in the guide.

The operation of the machine is apparent from the above description. The attendant wishing to print a given number on all of the coupons of a ticket manipulates the setting bars to bring the desired number (which is to be printed) into view through the openings 26. As has been explained, when any setting bar is moved, the rack teeth thereof rotate the pinion associated therewith, which in turn, rotates the shaft on which it is mounted, and the several other pinions that are mounted on said shaft correspondingly move the associated rack bars, which in turn rotate the type wheels of both rows that a mesh with said rack bar thereby bringing the selected type characters of the selected type wheels of both rows into printing position. If additional data is to be printed simultaneously with the printing of the number on the coupons, the type bars with the type set therein to print the desired data, are placed in the notches of the guide strips. The coupon ticket is then inserted and the handle depressed thereby making an impression on the ticket.

The same identification number may thus be simultaneously printed on all of the coupons of a coupon ticket, and other data, such as prices (which may be different on each coupon) is printed simultaneously with the printing of the identification number.

More or less variation of the exact details of construction is possible without departing from the spirit of this invention; I desire, therefore, not to limit myself to the exact form of the construction shown and described, but intend, in the following claims to point out all of the invention disclosed herein.

I claim as new and desire to secure by Letters Patent:

1. In a coupon ticket printing machine, the combination of two spaced rows of type wheels having type characters thereon and arranged to print in two lines, the type wheels of each row being arranged in similar groups corresponding to the groups of the other row and setting mechanism coupled to corresponding type wheels of the several groups of both rows for simultaneously setting into printing position the corresponding type wheels of the several groups of both rows.

2. In a coupon ticket printing machine, the

combination of two spaced rows of type wheels having type characters thereon and arranged to print in two lines, the type wheels of each row being arranged in groups corresponding to the groups of the other row, setting bars, one for each type wheel of a group, pinions driven thereby, one pinion for a corresponding type wheel of each group of one row, and rack bars, one meshing with each said pinion, and having driving means engaging corresponding type wheels of both rows.

3. In a coupon ticket printing machine, the combination of two spaced rows of type wheels having type characters thereon and arranged to print in two lines, the type wheels of each row being arranged in similar groups corresponding to the groups of the other row and individual setting mechanism for corresponding type wheels of each group of both rows, having connections coupled to corresponding type wheels of the several groups of one row, and coupling means between corresponding type wheels of both rows.

4. In a coupon ticket printing machine, the combination of two spaced rows of type wheels having type characters thereon and arranged to print in two lines, the type wheels of each row being arranged in groups corresponding to the groups of the other row, setting members, one corresponding with corresponding type wheels of each group of both rows, and motion transmitting connections between each setting member and a corresponding type wheel of each group of one row, and coupling members between corresponding type wheels of both groups.

5. In a coupon ticket printing machine, the combination of two spaced rows of type wheels having type characters thereon and arranged to print in two lines, the type wheels of each row being arranged in groups corresponding to the groups of the other row, individual setting bars, one corresponding with corresponding type wheels of each group of both rows, said setting bars having rack bars thereon; pinions, one meshing with each rack bar, shafts one for each pinion, other spaced pinions on each shaft, there being one pinion corresponding to each type wheel of a group in one row, rack bars one meshing with each of said pinions and having rack teeth meshing with teeth on corresponding type wheels of both rows.

6. In a coupon ticket printing machine, the combination of two spaced rows of type wheels having type characters thereon and arranged to print in two lines, the type wheels of each row being arranged in groups corresponding to the groups of the other row, setting rack bars, one for corresponding type wheels of each group of both rows, pinions, one meshing with each setting rack bar, shafts one for each pinion, other pinions mounted on said shafts, there being pinions on each shaft corresponding to corresponding type wheels of the several groups in one row, and rack bars, one meshing with each of said pinions, and having rack teeth meshing with teeth on corresponding type wheels of both rows.

7. In a coupon ticket printing machine, the combination of two identical rows of type wheels, the type wheels in each row being arranged in groups, rack bars, one connecting corresponding type wheels of both groups, setting bars, one corresponding to each type wheel of a group, and motion transmitting connections between each setting bar and the corresponding rack bar for each group of type wheels.

8. In a coupon ticket printing machine, the combination of two identical rows of type wheels, the type wheels in each row being arranged in groups, rack bars, one connecting corresponding type wheels of both groups, and setting mechanism, comprising setting rack bars, pinions meshing therewith, shafts, one for each pinion, and other pinions on said shafts meshing with the respective rack bars.

9. In a coupon ticket printing machine having mechanism for printing several lines of type, an adjustable coupon ticket guide, having upstanding pins arranged to engage in perforations in the ticket, a support for said guide, a spring pressed pin on said guide, and a block having spaced sockets for said pin, mounted on said support.

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